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ABSTRACT

Adults have specific and unique motivational needs in instructional settings. As a result, motivating instruction for adult learners should be designed with special considerations. This paper uses an adult motivational instructional design model to demonstrate the application of prescribed strategies into instructional software designed to teach basic statistics concepts. The ARCS (attention, relevance, confidence, and satisfaction) model for designing motivational strategies is described. For each category, an example is given for incorporating these motivational strategies into computer-based instruction programs. The implications and applications of motivating design of instruction for adults are also discussed. (Contains 20 references.) (Author/JLB)

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Title:

Applications of an Adult Motivational Instructional Design Model

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Abstract

Using an adult motivational instructional design model, the authors demonstrate the application of prescribed strategies into instructional software designed to teach basic statistics concepts. The basic software is compared to the enhanced motivational version. Important motivational strategies are explained and implications and applications of motivating design of instruction for adults are discussed.

Introduction

Many researchers (Aslanian & Brickel, 1980; Cross, 1981; Galbraith, 1990 & 1991; Houle, 1961; Knowles, 1980; Wlodkowski, 1985; Zemke & Zemke, 1981) have proposed that adults have specific and rather unique motivational needs in instructional settings. These needs may be due to any number of changes that take place over time: (a) life experiences (Knowles, 1980), (b) transitions in life (Cross, 1981), or (c) learned attitudes over time as a major factor in adult learning (Wlodkowski, 1985). As a result, it would seem that motivating instruction for adult learners should be designed with special considerations in mind.

Motivational Instructional Design

Instructional motivation increases the learners' effort and attracts learners to the instructional content and methods (Keller, 1983). This means that instructional motivation has two components, it is appealing and effort generating. Motivational instruction, therefore, facilitates an appeal or interest within the learner and it also stimulates an increase in the effort or time on task of the learner. This dual characteristic of instructional motivation has been supported in previous studies (Bohlin, Milheim, & Viechnicki, 1990a & b).

Keller (1987), Keller and Suzuki (1988), and Keller and Kopp (1987) specifically identify four categories of motivating strategies in learning situations: attention, relevance, confidence, and satisfaction (ARCS). The ARCS Model proposes that motivating instruction contains strategies from some or all of these four categories. The instructor/designer, therefore, can promote motivation by using appropriate strategies.

The attention of the learner can be promoted through procedures that increase curiosity, interest, or arousal by using humor, variety, enthusiasm, etc. The relevance of the instruction refers to the personal needs of the learner and can be facilitated by matching the instruction to learners' goals, making the benefits clear, keeping the challenge level appropriate, etc. The confidence of the learner, defined as the learner's expectancy for success, can be increased by strategies such as clearly indicating the requirements for success, providing a low risk environment, and giving accurate attributional feedback. The learners' satisfaction depends upon the extent to which the rewards gained are perceived as appropriate and consistent with their expectations, and can be promoted by providing appropriate recognition for success, giving informative and corrective feedback, etc.

This model was developed through inductive and deductive methods focused on K-12 classrooms. But if theorists are correct, these data may not generalize to adults. In order to better match motivating strategies to adult instruction, we must go beyond the ARCS look at the needs of adults.

Previous studies (Bohlin, Milheim, & Viechnicki, 1993a & b) have identified specific strategies from the ARCS categories and from adult learning theory that are especially motivating for adults. These strategies have been integrated into an adult instructional motivation design model, which has been referred to as the "Golden ARCS Model." The strategies from this model should provide a better match when designing motivating instruction or materials for adult learners. Many of these strategies can be easily integrated into instruction and materials in ways that will increase the interest and effort of older learners.

Integrating Strategies into Instruction

Based on the above research, the authors have developed a number of suggestions for incorporating motivational strategies into instructional materials. While the majority of the strategies listed below are focused primarily on their use within computer-based instruction, many could also be easily adapted for use with other forms of instructional media.

Attention

In terms of attention, specific computer-based materials could begin with several facts that contradict the learner's previous perceptions concerning the material included in the program (Keller, 1987). In addition to reducing the overall anxiety of the student, this strategy may gain the attention of the learner since the material is somewhat unexpected based on previous experience. Similar unexpected events (within reason) can also be integrated throughout other parts of the program to help engage the learner in a deeper level of interest and attention (Keller & Suzuki, 1988).

Content-related anecdotes, case studies, and biographies are also appropriate (Keller, 1987), since they provide variety within an instructional program and help maintain a level of interest in all of the included material. Attention based on specific instructional screens can be facilitated through the use of traditional strategies such as animation, inverse text, or the use of sound (Keller & Suzuki, 1988; Rieber & Hannafin, 1988), although the overuse of these strategies can interfere with the learning process (Rieber, 1990). The integration of problem-solving activities within the lesson (Keller, 1987) also assists in breaking up the potential monotony that can occur within instruction delivered by computer.

Figure 1 shows one method for increasing attention within computer-based training, where animation (a flashing arrow in the computer program) indicates an important point on the screen. While this type of attention-getting device should obviously be only one part of an overall motivational strategy, it can be quite effective for directing a learner's attention to a specific aspect of an instructional program.

Insert Figure 1 about here

Relevance

For this component in the model, instructional designers should focus on showing learner how the instructional materials relate to specific, current needs. Keller (1987), for example, suggests showing how specific instruction relates to future learner activities in addition to building on current or existing skills. Demonstrating significant enthusiasm for the content within the program can also indicate to the learner that the material is important and therefore relevant to their potential future needs.

More specific suggestions for increasing the relevance of an instructional module include:

- the use of personal pronouns as well as the student's actual name to provide a friendly and familiar atmosphere (Keller & Suzuki, 1988),
- the consistent use of examples from a student's everyday job or general environment, and
- a description of the application of the content to the real life of the learner where it can be transferred after the program is over.

Figure 2 indicates the opening screen of a computer program where the learner is asked for their social security number as well as his or her first name. While the number is used for tracking purposes, the name can be used throughout the program for personalized feedback and reinforcement as well as to increase the friendliness of the experience.

Insert Figure 2 about here

Confidence

In terms of confidence, learners need to be consistently reminded of their own intrinsic abilities and their overall potential for success within a program. In this respect, the content within an instructional module should be organized on an increasing level of difficulty, with the student also being shown that the material can be learned through personal effort even though the content may seem somewhat complex. Moderately difficult self-evaluation tools can also be provided to the involved learners (Keller, 1987) so they can assess their own competence as they move through the overall program.

With respect to navigation within the program, the learner should be permitted as much control as possible, including at least the ability to page forwards and backward from screen to screen and to escape to a menu at any time (Keller & Suzuki, 1988). This type of control will provide users with the ability to progress at their own pace (with limited intervention from the instructional program) and hopefully increase their confidence in their ability to use the program and learn the appropriate content.

Several of these suggestions are illustrated in Figure 3 which shows a simple problem which can be easily mastered by the learner based on the skills and concepts previously mastered. This screen also shows the availability of 'Next' and 'Previous' choices as well as a button that can return the user to the Main Menu at any point during the instructional program.

Insert Figure 3 about here

Satisfaction

Finally, satisfaction can be enhanced by a number of different strategies. Keller (1987), for example, suggests providing praise for successful progress through an instructional program as well as verbal reinforcement for a student's intrinsic pride in their own task accomplishment. He suggests varying the schedule of this reinforcement, with frequent praise provided when a student is learning a new task and intermittent reinforcement as the student becomes more competent with the material.

In addition, Keller and Kopp (1987) suggest allowing learners to use their newly acquired knowledge or skills in a real or simulated setting following their instructional experience, since the successful utilization of these skills would increase the student's satisfaction with the learning process and their potential ability to use their newly acquired knowledge. This type of utilization could also increase the confidence level of these students (see above) since they would be more comfortable in their potential use of these new skills.

Discussion

Adult instructional motivation is becoming increasingly important as more adult learners are returning to instructional settings, through schooling, training, and retraining. The vary nature of students in higher education is changing as nontraditional students are returning to colleges and universities. Also, as societal changes accelerate, progressively more adults are forced to learn new skills and processes. There is a great need of motivating materials for this population.

The instructional materials highlighted in this paper were developed by integrating strategies and components from a model for the design of motivating instruction for adults. It is expected that these can compensate for a lack of interest, relevance, or confidence of adult learners. This is especially important for such topics and statistics, which for many carries with it feelings of anxiety and low self-efficacy.

These kinds of materials can also be used conduct research of such questions as:

- What is the minimum amount of motivational strategies to have achievement effects?
- What is the minimum amount of motivational strategies to have affective effects?
- At what point does the use of excessive numbers of strategies become demotivating?
- What combination of strategies are best for adults from underrepresented populations?

Whether the focus is on development or research, more applications and investigations must take place in order to assess the real needs of adults in various settings. In addition, more ways to meet those needs must be examined.

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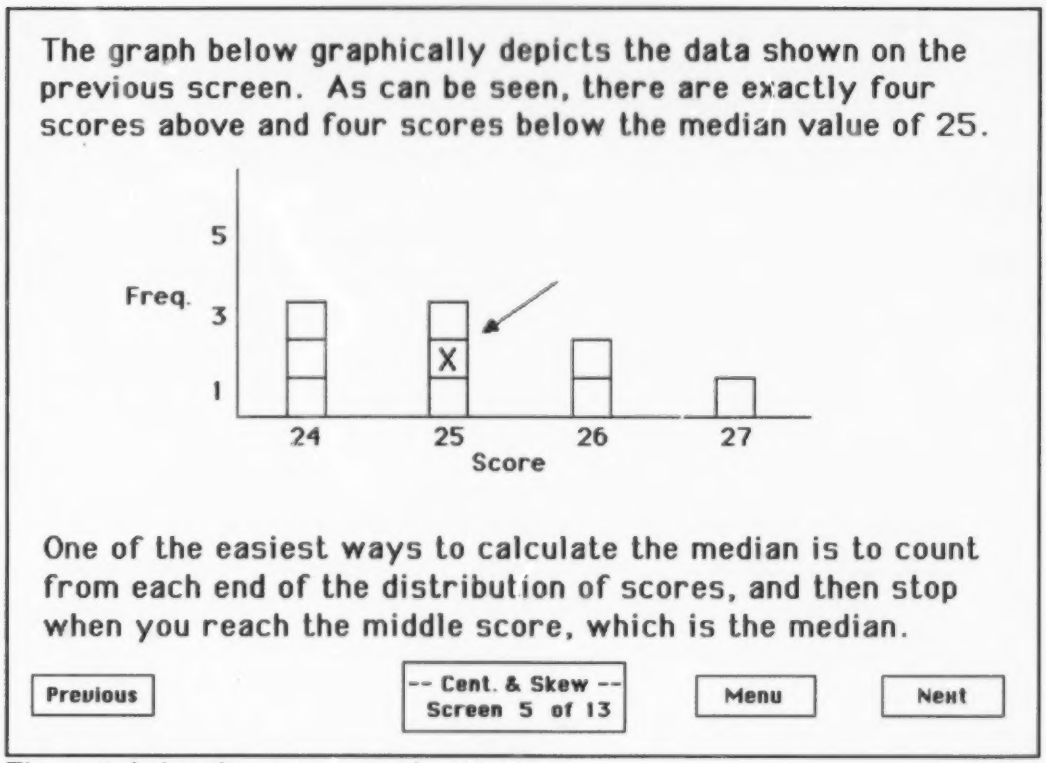
The graph below graphically depicts the data shown on the previous screen. As can be seen, there are exactly four scores above and four scores below the median value of 25.
5
Freq.
3
1
X
24
25
26
27
Score
One of the easiest ways to calculate the median is to count from each end of the distribution of scores, and then stop when you reach the middle score, which is the median.
Previous
-- Cent. & Skew --
Screen 5 of 13
Menu
Next

Figure 1. Animation as an attention strategy

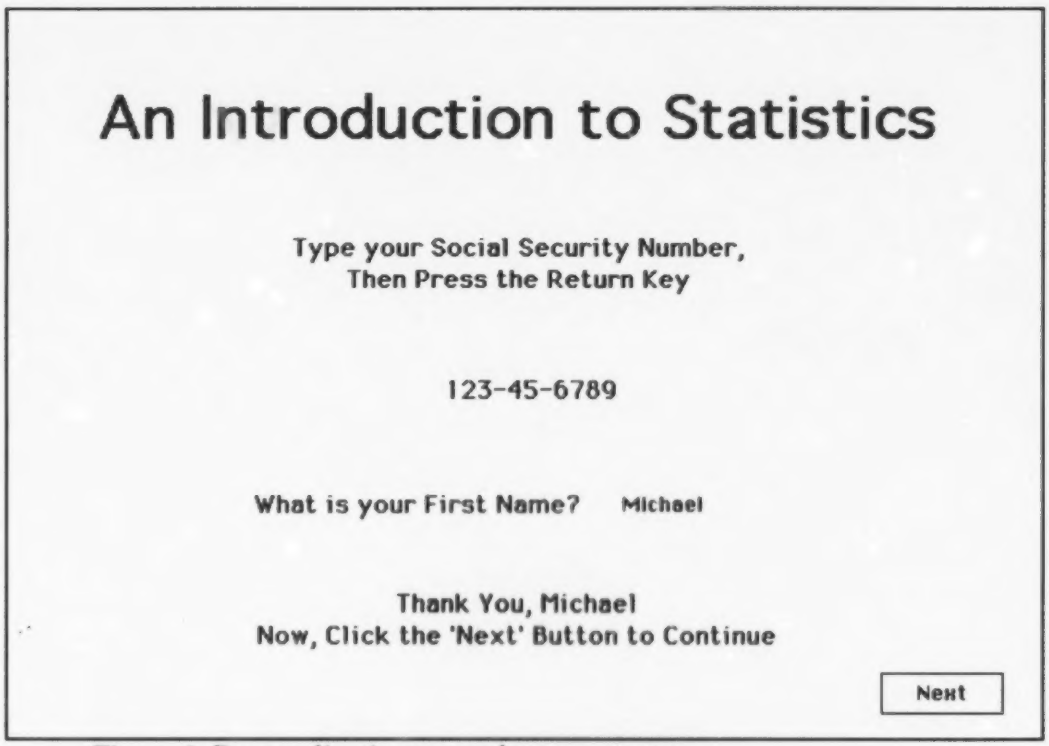
An Introduction to Statistics
Type your Social Security Number,
Then Press the Return Key
123-45-6789
What is your First Name? Michael
Thank You, Michael
Now, Click the 'Next' Button to Continue
Next

Figure 2. Personalization as a relevance strategy

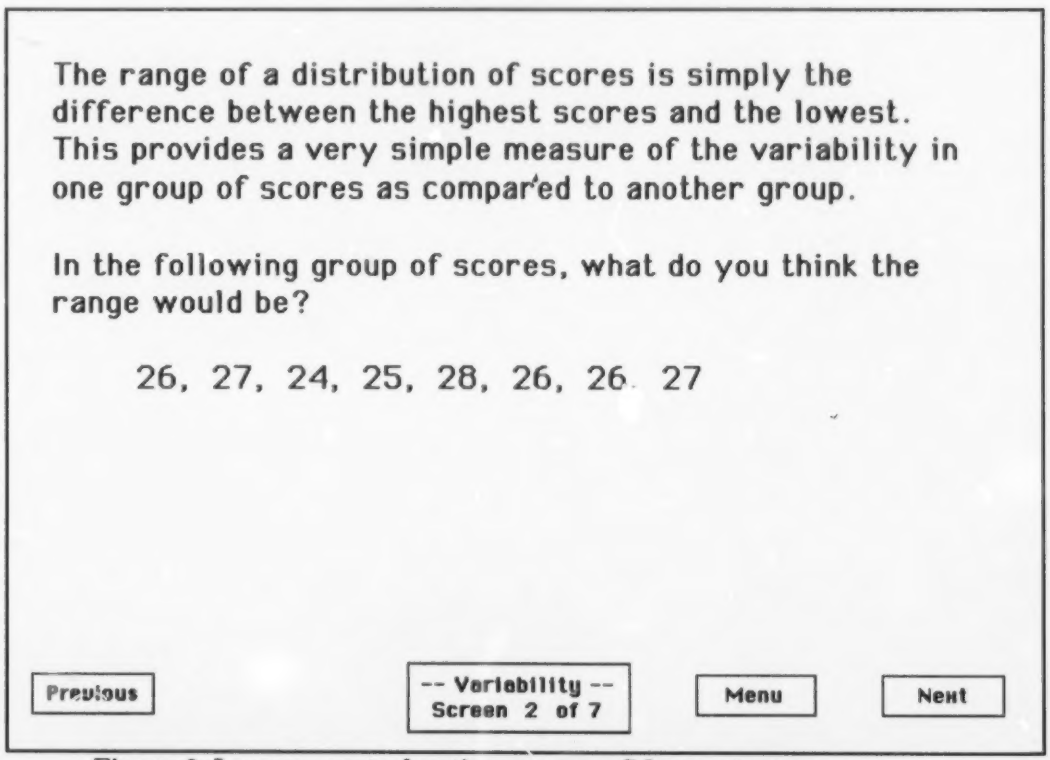
The range of a distribution of scores is simply the difference between the highest scores and the lowest. This provides a very simple measure of the variability in one group of scores as compared to another group.
In the following group of scores, what do you think the range would be?
26, 27, 24, 25, 28, 26, 26, 27
Previous
-- Variability --
Screen 2 of 7
Menu
Next

Figure 3. Learner control options as a confidence strategy